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FACTORS INFLUENCING THE JOB SUCCESS OF WOMEN COLLEGE GRADUATES

by

Anne Elizabeth Kelley

December 1988

Thesis Advisor: Loren M. Solnick

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This thesis examines the effects of personal, job-related, and college characteristics on the job success of women college graduates employed by a major U.S. manufacturing firm. Job success was defined in terms of performance evaluations, wage growth, and promotion rate models. The relative success of graduates of women's colleges were compared to graduates of coeducational institutions. Ordinary Least Squares analysis was used to evaluate the data. Empirical results indicate that performance evaluations were positively influenced by salary grade, various college majors, and attendance at a women's college. Conversely, the number of women faculty at the college attended adversely affected performance. The results of the promotion rate model show that performance evaluations reduce the time to promotion. Finally, the wage growth model illustrated the positive effects that marriage and education have on job success. Theses. (SDW)

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Factors Influencing the Job Success of Women College Graduates

by

Anne Elizabeth Kelley
Lieutenant, United States Navy
B.S., Harpur College, 1977

Submitted in partial fulfillment of the requirements for the degree of

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Author: Anne Elizabeth Kelley
Anne Elizabeth Kelley

Approved by: Loren M. Solnick
Loren M. Solnick, Thesis Advisor

S L Mehay
Stephen L. Mehay, Second Reader

David R. Whipple, Chairman,
Department of Administrative Sciences

K. T. Marshall
Kneale T. Marshall, Dean of
Information and Policy Sciences

ABSTRACT

This thesis examines the effects of personal, job-related, and college characteristics on the job success of women college graduates employed by a major U.S. manufacturing firm. Job success was defined in terms of performance evaluations, wage growth, and promotion rate models. The relative success of graduates of women's colleges were compared to graduates of coeducational institutions. Ordinary Least Squares analysis was used to evaluate the data. Empirical results indicate that performance evaluations were positively influenced by salary grade, various college majors, and attendance at a women's college. Conversely, the number of women faculty at the college attended adversely affected performance. The results of the promotion rate model show that performance evaluations reduce the time to promotion. Finally, the wage growth model illustrated the positive effects that marriage and education have on job success.

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I. INTRODUCTION

The goal of this study is to examine the impact that the type and quality of college attended has on the job success of women college graduates employed by a major U.S. manufacturing firm. For the purpose of this paper, job success will be defined in terms of a wage growth model and a promotion rate model. Since performance evaluations generally precede increases in both salary and rank, they will be used as the first indicators of success. Also, the relative success of women graduates of single-sex schools will be compared to that of alumnae of coeducational institutions.

Although Harvard College was established in 1636, women were not admitted into that bastion of higher education until almost 200 years later [Ref. 1]. Early women's colleges were not comparable to men's schools and provided at best a high-school level of education [Ref. 2:p. 11]. As the quality of education available at women's schools improved, coeducation became another option [Ref. 3]. Despite the improvement in the quality of education available to men and women, course offerings were still gender specific. Implicit in the education of women was the need to produce "...Christian women better prepared to assume their duties, in the domestic sphere as wives and mothers..." [Ref. 1:pp. 47–48] The first coeds at Oberlin College were "...given a watered-down literary course and were expected to serve

the men students at table and remain silent in mixed classes...." [Ref. 4:p. 15]

The foundation for the analysis conducted in this thesis is human capital investment theory. In simple terms, individuals seek to maximize their utility. However, the issue of human capital theory becomes complicated when considering expectations of labor force participation. Traditionally, women have been faced with the dilemma of choosing between success in the labor market and success in the marriage market. This fundamental choice colors every aspect of women's career aspirations. The primary choice of attending college is followed by the secondary matter of selecting a major. Women have typically been disproportionately represented in occupations requiring little training and/or allowing discontinuous labor force participation. Secretarial positions typically require little training, while nursing and teaching positions afford interrupted service opportunities. In the past, higher education has been considered a poor social investment for women because of their historically low labor force participation [Ref. 4:p. 21].

The concept of success has many definitions. However, the idea of "job success" has strong pecuniary implications. Women have been traditionally relegated to careers offering lower financial rewards than those typically filled by men. As a result of this quasi-self-selection process, women have ordinarily not been considered as successful as their male counterparts. Allegedly, societal norms of gender definition are changing, enabling women to further explore their professional

potential. Presumably, the domain of higher education is to enable the individual to realize his or her full potential. Inherent in this responsibility is the task of at least presenting women with nontraditional options that could facilitate their success in the labor market.

The scope of this study is limited to exploring individual returns to human capital investment. These returns will be quantified as previously described, using performance ratings, promotions, and salary increases. The social returns to human capital investment are implicit in the individual, though profoundly more difficult to assess. In spite of the declining youth population, applications to Ivy League Schools are up. This increase is due in part to the expectation of a higher life stream of earnings associated with attending better-quality colleges. This is true even though the cost of attending Ivy League schools is much higher—$20,000 at Ivy League schools compared with $10,000 at other schools [Ref. 5].

The positive effect of college education is well established. In particular, the relationship between promotion rates and salary growth rates are positively related to college quality and GPA [Ref. 6]. Other studies relate lifetime earnings potential to expenditures per student [Ref. 7]. Studies on the collegiate experience abound. Among the college characteristics that seem to affect students are: quality (selectivity), size, control (private/public), geographical location, and religious affiliation [Ref. 8]. It seems logical to assume that women's colleges would provide women with the best education because that is their exclusive purview [Ref. 9]. Research in this area indicates that,

on average, women graduates of women's schools are: (1) twice as likely to appear in *Who's Who in American Women*, (2) up to four times as likely to receive doctorates, and (3) twice as likely to enter medical school [Ref. 10]. While it can be argued that the student output of an institution is only as good as the input, it is unlikely that only the most able women select women's colleges. In actuality, there is a continuing struggle between women's schools and Ivy League schools to obtain the most able women students.

The achievement rates mentioned above are diametrically opposed to the notion that single-sex schools perpetuate feminine charm mythology and provide an isolated parochial environment. Numerous factors have been attributed to the success of women's colleges. Among those commonly cited are: (1) climate, i.e., women "...are more likely to be verbally aggressive and to seek positions of leadership if they are not in the presence of men" [Ref. 10]; (2) high women faculty to student ratio provides young women with necessary role models [Ref. 10]; and (3) there is an opportunity for women to develop professional networks analogous to those of men [Ref. 11].

The number of women's colleges peaked in 1960 at 214 [Ref. 10]. Since that time, the number has declined dramatically and is now less than 98 [Ref. 12]. Certainly, the reasons for the decline in single-sex schools are diverse, but they are primarily financial in nature. As a result of the trend in the 1970s toward coeducation, the Seven Sisters (Barnard, Bryn Mawr, Mount Holyoke, Smith, Vassar, Radcliffe, Wellesley) became five (Vassar went coed and Radcliffe merged with

Harvard) [Ref. 13]. Similarly, in a recent controversy, Wheaton, the oldest women's college in New England, joined the ranks of coeducational institutions this September [Ref. 14]. There are many who feel that monosex institutions have outlived their usefulness and should die a natural death. However, it seems that a better understanding of these institutions is warranted as the number of women attending college increases. Aside from a purely pedagogical interest, the economics of the increased labor force participation rate of women engenders an analysis of their education. It is projected that by the year 2000, the labor force will consist of 80 percent minorities and women [Ref. 15]. These statistics clearly indicate the importance of ensuring the best possible education to prepare women for success in the labor force.

This study is especially relevant because it examines a sample of women who are presumably more representative of the average woman than in previous studies. Certainly the women who appear in *Who's Who* and who attend medical school do not reflect societal norms. The findings of this study should be applicable both to the civilian and military sectors. Although only individual returns to human capital investment will be specifically examined, social benefits are implicit when education is improved.

The balance of this thesis will be structured in the following manner: Chapter II—Literature Review, Chapter III—Data and Models, Chapter IV—Empirical Results, and Chapter V—Conclusions and Recommendations.

II. LITERATURE REVIEW

Relatively little research exists on the impact of college resources on labor market earnings. There are even fewer studies in the area of returns to human capital investments of women. The intent of this review is first to discuss the generic studies in returns to human capital investment and then to explore the studies dealing specifically with women's achievement. A cautionary note is appropriate regarding sample selection of previous human capital investment studies. Since all these studies involve exclusively male samples, their applicability to this paper may be limited.

Wales researched the impact of the quality of college attended on subsequent earnings in the labor market. The sample source was the NBER-Thorndike data. The Gourman method was used to index college quality. This measure involves a combination of the average ratings of academic departments combined with specific course offerings. According to Wales, the Gourman rating should enable the student to match his abilities with the quality of a particular institution. Although these results are difficult to compare with other studies due to the rating scheme, the findings were dramatic. The average college graduate earns between 29 percent and 39 percent more than a high-school graduate, depending on school quality. Inherent in this research, Wales cautions, is the possibility that the results are biased by the potential screening effect that college education might have on

employers. Also, there is an exhibited positive correlation between ability and school selected. The possibility that the earnings are due to innate ability and not quality of school exists and the two would be indistinguishable [Ref. 16].

Interestingly, Wales coauthored a similar study of the NBER-TH data with Taubman, examining ability, screening, and education. Their results indicate that ability initially has no impact on earnings. However, the influence of ability appears to increase over time and with more training. [Ref. 17]

Studies by Akin and Garfinkel [Ref. 18] and Wachtel [Ref. 7] examined a related area, comparing school expenditures per student to labor earnings. The results of both indicate that the expenditures per student are positively related to subsequent earnings in the labor force. This is an area that will be emphasized in this study. It will be interesting to compare the resources available at single-sex schools with those offered at coeducational institutions.

Perhaps the most comprehensive research in the area of labor market success and returns to human capital investment has been conducted by Wise. His research has provided a foundation for this study. The focus of his research was the comparison of college quality and job success as defined by salary growth and promotion rate. He found that college selectivity and GPA were positively related to job success. As in previous research, the difficulty in measuring the impact of ability on success persists. Further, all the factors influencing whether a person attends college and their motivation are

similarly elusive and difficult to quantify. These failures presumably do not decrease the value of the research, though the data may not be as accurate. [Ref. 6]

As previously stated, the studies regarding human capital investment have involved exclusively male samples. This study is similar to research conducted by Solnick, concerning the job success of black males who attended black colleges. His results indicate that blacks who graduated from black schools were less successful in the labor market than those graduating from non-black colleges. Apparently, the primary reason for this success differential can be attributed to the resource-poor nature of black colleges. As in previous studies, Solnick warns of the difficulty in measuring "innate ability, motivation, past human capital investments, and family background." Although his research examined blacks, it provided the path for this research. The concept, data, and methodology for this study are derived from Solnick's study. A further discussion involving the specifics of the data and plan for empirical analysis appear in the Data and Models section of this paper [Ref. 19]

Virtually no research exists concerning the returns to human capital investment and women. The vast majority of contributions to the study of women college graduates is due almost singularly to Dr. Elizabeth Tidball. The evolution of this research is as interesting as the results. Dr. Tidball is a physiologist at George Washington University Medial Center. In the capacity of a newly elected trustee at Mount Holyoke College, she attempted to educate herself on the then volatile

issue of coeducation. Since no research existed concerning the post-college achievements of alumnae, she initiated a field of inquiry now known as "environments for the undergraduate education of women." [Ref. 20] This research has spanned nearly 20 years and includes in excess of 60 publications [Ref. 21]. For the purpose of this thesis, four of the most germane studies will be examined.

Dr. Tidball's pioneer research investigated the baccalaureate origins of five decades of women achievers. This study defined an achiever in terms of appearance in *Who's Who of American Women.* The research had two major findings. First, a comparison between women graduates of women's colleges and coeducational institutions determined that twice as many achievers attended women's schools. Secondly, the number of achievers was positively correlated with the number of women faculty. Interestingly, this positive correlation between the percentage of women faculty and achievers was observed in both coeducational schools and women's colleges. However, the number of women faculty at women's schools was found to be twice that at coeducational institutions. The ratio of male faculty to women students seemed to have no impact on women's achievement. Moreover, the number of men students was inversely related to the achievements of women. The implications of this research are that women perform better in the absence of male students and with the support of women faculty. Clearly, this evidence is highly supportive of women's schools. [Ref. 22]

A study related to Dr. Tidball's initial research, by Oates and Williamson, confirmed and expanded her findings. Oates and Williamson corroborated that a disproportionate number of achievers graduated from women's schools. However, it also found that the majority of achievers were graduates of the Seven Sisters (prior to the change of Vassar and Radcliffe). The authors contend that the superior achievement of these graduates is ascribable more to their affluent socioeconomic status than to college selectivity. The authors suggest that further research in the arena of socioeconomics and academic success is appropriate [Ref. 23]. In addition, they have some fundamental theoretical differences of opinion with Dr. Tidball. Oates and Williamson feel that *Who's Who in America* yields a more accurate measure of women achievers than does *Who's Who in American Women.* Further, they contend that inadequate emphasis has been placed on the ideal college climate that would stimulate women to select atypical career fields. The selection of nontraditional occupations is considered by Oates and Williamson to be a gate marker for women's success in a male-dominated society [Ref. 24]. Dr. Tidball feels that the small sample of achievers derived from *Who's Who* renders their research statistically unreliable. [Ref. 25]

The second Tidball study explored a sampling of the above achievers to determine the impact of marital status on success. The data showed that unmarried women were seven times more likely to appear in *Who's Who* than married women. Further, both married and unmarried alumnae of women's colleges were more likely to be

successful than their coeducational contemporaries. Similarly, married graduates of women's colleges were almost three times as likely as married alumnae of coeducational institutions to become career successful. Further analysis of the data illustrated that the type of college attended had no impact on the percent of alumnae married or divorced. The biographical data of achievers showed: (1) 57 percent were married, with a divorce rate of 6 percent; and (2) 80 percent pursued postbaccalaureate studies and 40 percent obtained doctorates. Other pertinent findings of this study are that neither college selectivity nor faculty compensation per full-time student could account for the disparity in achiever output between women's and coeducational schools. College size was another variable studied, and the ideal was determined to be 200–600 graduates per year. Apparently, this size was ideal regardless of college type because of the specialized attention it affords students. [Ref. 26]

Tidball's next study examined the productivity of colleges with regard to graduates who subsequently obtained doctorates. The results of the study indicate that the most productive schools differ for men and women. As in the original research, women's colleges surpassed coeducational institutions in the percentage of achievers who received doctorates. The types of schools that were most productive of male achievers were large universities or small, private coeducational institutions. These results confirm that the educational environment offered at women's colleges is once again more conducive to women's success than that offered at coeducational schools. Similarly, the

different patterns that emerge as conducive to men's success suggest that there is indeed a distinct difference in the developmental environments needed to maximize the potentials of young men and women. [Ref. 27]

The next area of Dr. Tidball's research investigated the baccalaureate origins of medical school entrants. The trend discovered in the early research of twice the productivity at women's schools versus coeducational colleges was repeated. Similarly, the types of schools that were productive for men and women differed significantly. An interesting phenomenon uncovered in this research was that of the relative success of "change" schools. These are defined as institutions initially single-sex that have become coeducational. These findings are dramatically different for men and women. The school productivity sequence for men was (from high to low): universities with affiliated medical schools, change schools, then coeducational institutions. Conversely, for women the largest producers of female medical school entrants were women's colleges, followed by private universities affiliated with medical schools. The distinct differences in the apparent effect of change schools on success lend credence to the developmental differences in the education of men and women. In contrast to women being less successful and productive in the presence of men is the appearance that men perform better in coeducational environments. [Ref. 28]

As previously mentioned, Dr. Tidball's research has been prolific. In addition to the above studies, she explored the baccalaureate

history of natural science graduates. The purpose of this study was to illuminate the results of Reference 27, which examined the baccalaureate origins of women doctoral recipients. The focus of this research was the percentage of women who received doctorates in the natural sciences. In addition, this study is a companion to the above-mentioned research regarding medical school entrants. Again, women's colleges proved more productive than coeducational institutions. Also, the apparent disparity between the types of colleges most productive for men and women was replicated. [Ref. 29]

A final element of Dr. Tidball's research involves the representation of women in academe. She has shown that women, both in faculty and administration, are in the vast minority. In particular, the number of women deans and college presidents is very small, even at women's colleges. This minority representation could conceivably adversely affect both the college major selection and the role model development of women students. [Ref. 30]

III. DATA AND MODELS

The data for this study were extracted from two sources. The personal and job-related information on sample members was obtained from the personnel files of a large manufacturing firm. The college-related information regarding institutions attended by sample members was obtained from the Higher Education General Information Survey (HEGIS) public use tapes. The sample consists of women employees with at least a bachelor's degree hired between 1976 and 1982. The sample size that will be used in the first three models is 1,062. The final model will use a sample of 1,482.

The format for this analysis is fashioned after Solnick's study of black college graduates mentioned in the Literature Review [Ref. 19]. Ordinary Least Squares will be used to estimate four models. Two different specifications, described below, will be estimated for each model. The independent variables will be similar in the models. A brief description of these variables follows the discussion of the models. In addition, a summary of the independent variables appears in Table 1. Table 2 contains the means of selected variables. Interestingly, the faculty/student ratio at coeducational institutions approximates that at women's schools. However, the percentage of women attending college differs dramatically. There are twice as many women at women's colleges as at coeducational schools. Another interesting comparison is in the percentage of women faculty. Although there are only 55

percent women faculty at women's schools, there are half as many at coeducational schools. Finally, correlation coefficients are presented in Table 3.

TABLE 1

DEFINITIONS OF VARIABLES

Personal Attributes (x):

SALGRD	Salary grade
MARSTAT	A dummy variable for married
CHILD	A dummy variable for child
PREVEXP	Prior work experience calculated as hire date minus date of college degree
$PREVEXP^2$	PREVEXP squared
MGPA	A dummy variable for grade point average
MAST	A dummy variable for master's degree
DOCT	A dummy variable for doctoral degree
DEGAFTER	A dummy variable for receipt of a bachelor's degree after hire
BIGL1-BIGL5	Dummy variables for college major:
BIGL1	Engineering
BIGL2	Science
BIGL3	Biology
BIGL4	Computers
BIGL5	Business, accounting, and finance

Women's Colleges (WC)

PERFEM	Percent women students
NOTCOED	A dummy variable for women's schools

TABLE 1 (Continued)

DEFINITIONS OF VARIABLES

Job-Related Characteristics	
H76–H81	Dummy variables for year hired
FPRTG	First performance rating
College Characteristics (Z)	
OFFERPHD	A dummy variable for schools that offer a doctorate
FTE	Number of full-time equivalent students
FTE^2	FTE squared
PERFFAC	Percent women faculty
TOTAL	Total expenditures per student
INSTR	Annual instructional expenditures
RSRCH	Annual research expenditures
SUPPORT	Annual academic support
CNTRL	Dummy variable for whether school is public or private

TABLE 2

MEANS (STANDARD DEVIATIONS) OF SELECTED CHARACTERISTICS BY TYPE OF SCHOOL

Characteristics	Women's Colleges	Coeducational Colleges	ta
Total Expenditures Per FTE Student	729 (286)	887 (2,700)	-.2545
Faculty/Student Ratio	.065 (.022)	.061 (.150)	.0991
OFFERPHD	10.5 (31.5)	53.2 (50.0)	-3.6886
PERFEM	96.4 (7.7)	47.7 (11.2)	18.6261
PERFFAC	54.9 (12.9)	24.1 (11.5)	10.1769
N	19	385	

TABLE 3a

CORRELATION COEFFICIENTS

	MARSTAT	CHILD	PREVEXP	$PREVEXP^2$	MGPA	MAST	DOCT
MARSTAT	1.00000 0.0000 1897	0.20730 0.0001 1897	0.01733 0.4506 1897	-0.00388 0..8660 1897	0.03961 0.0845 1897	0.05151 0.0249 1897	0.04508 0.0497 1897
CHILD	0.20730 0.0001 1897	1.00000 0.0000 1897	0.19360 0.0001 1897	0.18753 0.0001 1897	0.10107 0.0001 1897	0.11085 0.0001 1897	0.06759 0.0032 1897
PREVEXP	0.01733 0.4506 1897	0.19360 0.0001 1897	1.00000 0.0000 1897	0.88186 0.0001 1897	0.18763 0.0001 1897	-0.20559 0.0001 1897	0.12835 0.0001 1897

TABLE 3a (Continued)

CORRELATION COEFFICIENTS

	MARSTAT	CHILD	PREVEXP	PREVEXP^2	MGPA	MAST	DOCT
PREVEXP^2	-0.00388 0.8660 1897	0.18753 0.0001 1897	0.88186 0.0001 1897	1.00000 0.0000 1897	0.12018 0.0001 1897	-0.11192 0.0001 1897	0.05282 0.0214 1897
MGPA	0.03961 0.0845 1897	0.10107 0.0001 1897	0.18763 0.0001 1897	0.12018 0.0001 1897	1.00000 0.0000 1897	0.08989 0.0001 1897	0.19311 0.0001 1897
MAST	0.05151 0.0249 1897	0.11085 0.0001 1897	-0.20559 0.0001 1897	-0.11192 0.0001 1897	0.08989 0.0001 1897	1.00000 0.0000 1897	-0.14531 0.0001 1897
DOCT	0.04508 0.0497 1897	0.06759 0.0032 1897	0.12835 0.0001 1897	0.05282 0.0214 1897	0.19311 0.0001 1897	-0.14531 0.0001 1897	1.00000 0.0000 1897
OFFERPHD	0.0476 0.8359 1897	-0.01667 0.4682 1897	-0.09231 0.0001 1897	-0.06913 0.0026 1897	0.01010 0.6602 1897	0.11776 0.0001 1897	0.10104 0.0001 1897
DEGAFTER	-0.05964 0.0094 1897	-0.4420 0.0543 1897	-0.10833 0.0001 1897	-0.06014 0.0088 1897	0.01357 0.5546 1897	-0.09738 0.0001 1897	-0.07833 0.0006 1897
FTE	0.01466 0.5234 1897	-0.01908 0.4062 1897	-0.00882 0.7012 1897	-0.02306 0.3155 1897	-0.00656 0.7753 1897	0.08599 0.0002 1897	0.10296 0.0001 1897
FTE^2	0.01179 0.6077 1897	-0.02119 0.3564 1897	0.00895 0.6970 1897	-0.00835 0.7163 1897	-0.01428 0.5341 1897	0.05632 0.0142 1897	0.08769 0.0001 1897
PERFFAC	-0.02406 0.2949 1897	0.08046 0.0005 1897	0.12216 0.0001 1897	0.09005 0.0001 1897	0.02641 0.2503 1897	-0.02795 0.2238 1897	-0.08273 0.0003 1897
PERFEM	-0.02840 0.2163 1897	0.07389 0.0013 1897	0.12968 0.0001 1897	0.08435 0.0002 1897	0.02950 0.1990 1897	-0.05946 0.0096 1897	-0.06975 0.0024 1897
INSTR	0.00823 0.7200 1897	0.01098 0.6327 1897	-0.03797 0.0983 1897	-0.01899 0.4083 1897	0.07182 0.0017 1897	0.07266 0.0015 1897	0.18658 0.0001 1897

TABLE 3a (Continued)

CORRELATION COEFFICIENTS

	MARSTAT	CHILD	PREVEXP	PREVEXP^2	MGPA	MAST	DOCT
RSRCH	0.02806	0.03596	0.1595	0.00528	0.03552	-0.00382	0.12562
	0.2832	0.1307	0.5027	0.8244	0.1354	0.8726	0.0001
	1768	1768	1768	1768	1768	1768	1768
SUPPORT	-0.01916	-0.01247	-0.05465	-0.00049	0.09299	0.05174	0.20792
	0.4334	0.6104	0.0254	0.9839	0.0001	0.0343	0.0001
	1673	1673	1673	1673	1673	1673	1673
CNTRL	0.02017	0.03209	-0.08454	-0.06169	0.00656	0.08106	-0.08393
	0.3799	0.1624	0.00023	0.0072	0.7753	0.0004	0.0003
	1897	1897	1897	1897	1897	1897	1897
NOTCOED	-0.02219	0.04356	0.07652	0.06988	-0.00835	-0.06628	-0.04001
	0.3340	0.0579	0.0009	0.0023	0.7163	0.0039	0.0815
	1897	1897	1897	1897	1897	1897	1897

TABLE 3b

CORRELATION COEFFICIENTS

	OFFERPHD	DEGAFTER	FTE	FTE^2	PERFFAC	PERFEM
MARSTAT	0.00476	-0.05964	0.01466	0.01179	-0.02406	-0.02840
	0.8359	0.0094	0.5234	0.6077	0.2949	0.2163
	1897	1897	1897	1897	1897	1897
CHILD	-0.01667	-0.04420	-0.01908	-0.02119	0.08046	0.07389
	0.4682	0.0543	0.4062	0.3564	0.0005	0.0013
	1897	1897	1897	1897	1897	1897
PREVEXP	-0.09231	-0.10833	-0.00882	0.00895	0.12216	0.12968
	0.0001	0.0001	0.7012	0.6970	0.0001	0.0001
	1897	1897	1897	1897	1897	1897
PREVEXP^2	-0.06913	-0.06014	-0.02306	-0.00835	0.09005	0.08435
	0.0026	0.0088	0.3155	0.7163	0.0001	0.0002
	1897	1897	1897	1897	1897	1897
MGPA	0.01010	0.01357	-0.00656	-0.01428	0.02641	0.02950
	0.6602	0.5546	0.7753	0.5341	0.02503	0.1990
	1897	1897	1897	1897	1897	1897

TABLE 3b (Continued)

CORRELATION COEFFICIENTS

	OFFERPHD	DEGAFTER	FTE	FTE²	PERFFAC	PERFEM
MAST	0.11776 0.0001 1897	-0.09738 0.0001 1897	0.08599 0.0002 1897	0.5632 0.0142 1897	-0.02795 0.2238 1897	-0.05946 0.0096 1897
DOCT	0.10104 0.0001 1897	-0.07833 0.0006 1897	0.10296 0.0001 1897	0.08769 0.0001 1897	-0.08273 0.0003 1897	-0.06975 0.0024 1897
OFFERPHD	1.00000 0.0000 1897	0.01115 0.6274 1897	0.51612 0.0001 1897	0.36001 0.0001 1897	-0.45869 0.0001 1897	-0.37317 0.0001 1897
DEGAFTER	0.01115 0.6274 1897	1.00000 0.0000 1897	-0.05539 0.0158 1897	-0.05110 0.0260 1897	0.02310 0.3145 1897	0.00838 0.7152 1897
FTE	0.51612 0.0001 1897	-0.05539 0.0158 1897	1.00000 0.0000 1897	0.94869 0.0001 1897	-0.27055 0.0001 1897	-0.08325 0.0003 1897
FTE^2	0.36001 0.0001 1897	-0.05110 0.0260 1897	0.94869 0.0001 1897	1.00000 0.0000 1897	-0.20519 0.0001 1897	-0.04857 0.0344 1897
PERFFAC	-0.045869 0.0001 1897	0.02310 0.3145 1897	-0.27055 0.0001 1897	-0.20519 0.0001 1897	1.00000 0.0000 1897	0.76369 0.0001 1897
PERFEM	-0.37317 0.0001 1897	0.00838 0.7152 1897	-0.08325 0.0003 1897	-0.04857 0.0344 1897	0.76369 0.0001 1897	1.00000 0.0000 1897
INSTR	0.30027 0.0001 1897	-0.01315 0.5672 1897	0.00018 0.9938 1897	-0.03760 0.1016 1897	-0.05716 0.0128 1897	-0.18269 0.0001 1897
RSRCH	0.08413 0.0004 1768	-0.00771 0.7461 1768	-0.02003 0.4000 1768	-0.01150 0.6289 1768	-0.09332 0.0001 1768	-0.13555 0.0001 1768
SUPPORT	0.17351 0.0001 1673	-0.02022 0.4085 1673	-0.18689 0.0001 1673	-0.19350 0.0001 1673	-0.21092 0.0001 1673	-0.27482 0.0001 1673
CNTRL	-0.04812 0.0361 1897	0.02720 0.2364 1897	0.01796 0.4342 1897	0.02773 0.2273 1897	0.07576 0.0010 1897	0.08135 0.0004 1897

TABLE 3b (Continued)

CORRELATION COEFFICIENTS

	OFFERPHD	DEGAFTER	FTE	FTE^2	PERFFAC	PERFEM
NOTCOED	-0.20882	0.04465	-0.16919	-0.10356	0.45953	0.57382
	0.0001	0.0518	0.0001	0.0001	0.0001	0.0001
	1897	1897	1897	1897	1897	1897

The general form of the models is as follows:

$$P_i = f(X, WC, Y, Z, U) \qquad (1)$$

Where P_i indicates performance rating of type i (i-1,2,3,4):

P_1 = first performance rating

P_2 = average performance rating

P_3 = time to promotion

P_4 = growth in salary

X = a vector of personal attributes

WC = variable representing a women's college

Y = a set of dummy variables for year hired

Z = a vector of college characteristics

U = random disturbance term

The first model will use the employee's first performance rating (FPRTG) as the dependent variable. In theory, the first performance rating should reflect the impact of college education more than subsequent evaluations. As mentioned above, there will be two specifications estimated with this model. They differ only in the variables used to represent women's colleges (WC). The first model uses the percentage

of women students (PERFEM) as an explanatory variable to indicate the type of college attended. Theoretically, this variable should capture the student-body composition rather than the unique environment that is fostered by single-sex institutions. As mentioned in the previous chapter, one of the benefits of attending a women's school is the opportunity that exists for networking. This formation of contacts during the college years has been demonstrated to be positively associated with the post-college success of students in the labor force. The second specification of this model will employ the explanatory variable "not coeducational" (NOTCOED) to represent women's colleges. Although this may appear redundant, it represents very different factors associated with attending women's schools. This variable embodies elements associated with single-sex schools that include curriculum, self-selection, and general character of the institution. Essentially, the difference between the two variables is that the former encompasses student-body composition, while the latter embraces all the nuances that distinguish women's colleges. A discussion of the other variables that compose the vector of the college characteristics will follow the general model explanation.

The second model will estimate average performance (APERF) as the dependent variable. This variable is important because the length of employment,and thus the number of evaluations, is not constant among employees. Also, due to the relatively short time period examined, this provides another measure of college impact on performance.

The two specifications that will be estimated with this model will be identical to those explained above.

The third model will measure the time to promotion (TIMEPR) as the dependent variable. This variable is defined as the difference between promotion date and hire date. FPRTG is included in this model in the independent variables because it should influence the time to promotion. Wise [Ref. 6] argues that promotions, especially short term, are more indicative of success than wage growth. As above, the same equations will be used to examine the impact of women's colleges. In analyzing the results of this model, it will be important to remember that is is a reverse measure of success. Thus, variables that reduce the time to promotion should have negative coefficients.

The final model is a wage growth model. The dependent variable is GSAL and measures the percentage change in salary from date of hire until the end of 1983. The two specifications described above will be estimated with this model. In theory, this model may yield the most credible results due to the longer time period examined.

The selection of independent variables affecting success in the labor market is hindered by the difficulty in assessing ability before schooling. Presumably, those more able will choose better schools, perform better while at school, and ultimately outperform those less able. The problem in specifying these models dealing with human capital investment is the possibility of mistaking job success due to innate ability for that induced by education. However, since these flaws of specification are inherent in this research, it is expected that only

the magnitude of the coefficients may be somewhat biased. Presumably, the signs of the estimated parameters will yield credible results.

The independent variables will be discussed in the sequence in which they appear in the general models. However, for ease of analysis, the variables representing women's colleges will be incorporated in the discussion of college characteristics. First, the personal attributes composing vector X will be described:

1. **Salary Grade (SALGRD)**—This variable accounts for the 15 different salary gradations at this firm. A set of three dummy variables will be used to eliminate any potential advancement bias associated with a particular salary grade. Theoretically, the hierarchical promotion structure characteristic of a large corporation would not exhibit a uniform rate of promotion. Those at the entry level would be expected to advance at a rate different from those at higher levels.

2. **Marital Status (MARSTAT)**—This is a dummy variable indicating whether an employee is married. Fifty-five percent of the sample are single. Controversy exists in the literature regarding the impact of marriage on the job success of women. According to Almquist, women are discriminated against in the labor market in a two-fold manner, first on the grounds "...that women will marry and that married women, in contrast to married men, are not productive workers." This hypothesis seems to be confirmed by the lack of earnings differences between married and single women. This perversity is interesting when compared to the additional training, education, and longer workforce participation characteristic of single women [Ref. 31]. Thus, there appears to be no discrimination in the labor force discrimination of women—married or single. Both categories of women earn substantially less than men [Ref. 31]. These possible effects are separate and distinct from the well-documented career interruptions due to marriage.

3. **Children (CHILD)**—This is a dummy variable showing whether an employee has children under age 18 in the household. As above, probably due to the majority of sample members being single, 89 percent have no children. The effect of children on job success is similar to that of marriage. Again the issue is somewhat controversial regarding women. The responsibilities

associated with marriage and children are apparently universally reflected in better job performance by men. However, the effect becomes more obscure with women because they have traditionally shouldered greater parenting responsibilities.

4. **Previous Experience (PREVEXP, PREVEXP^2)**—These variables reflect any previous work experience that an employee has had prior to hire at this firm. Prior work experience should positively affect job performance. As a result, it is necessary to correctly specify the models so that success related to experience is not mistaken for success due to schooling. In addition, since this is a quadratic specification, the point of diminishing effect can be calculated to aid in the analysis.

5. **Grade Point Average (MGPA)**—This is a dummy variable for grade point average. It is assumed that those exhibiting higher grades in school will perform better in the labor force. In addition, this is one of the few means of assessing ability. Research has shown that better students perform better in the labor market.

6. **Master's Degree (MAST)**—This is a dummy variable revealing whether an employee has a master's degree. In theory, an individual with a master's degree should perform better than an employee with only a baccalaureate. However, differing results will be expected according to dependent variable. The theory is that those joining the firm with a higher degree will start at a salary grade higher than those without. As a consequence of the pyramidal promotion structure, the promotion rate should decrease from entry to top. Also, due to the low rate of return associated with human capital investment in graduate education, the impact on salary growth may not be substantially different from that witnessed by bachelor's recipients.

7. **Doctoral Degree (DOCT)**—A dummy variable indicating whether an employee possesses a doctoral degree. As above, the argument concerning a master's degree applies.

8. **Degree After Hire (DEGAFTER)**—This is a dummy variable showing whether an employee received a baccalaureate degree following hire. Presumably, the progress of these individuals with respect to promotion and salary growth will follow receipt of a degree.

9. **Biglan 1–Biglan 5 (BIGL1–BIGL5)**—This set of dummy variables is designed to control for the college major of employees. They are defined as engineering (BIGL1), science (BIGL2),

biology (BIGL3), computers (BIGL4), and finally business, including accounting and finance (BIGL5) [Ref. 32]. Research by Solnick has shown that promotion rates differ across fields [Ref. 33]. As a result, the potential for field-related bias exists unless these variables are used.

The next independent variables reflect job-related characteristics (Y in equation (1)).

10. **Hire Year 76–81 (H76–H81)**—This set of dummy variables is designed to control for any differences in success associated with a particular year of hire.

The final category of variables is college characteristics (Z) in equation (1). They include:

11. **Offer Doctoral Degree (OFFERPHD)**—Presumably, institutions offering doctoral degrees afford students a better education than those offering only lesser degrees. As a result, this variable is another measure of college quality.

12. **Full-Time Equivalent Students (FTE, FTE^2)**—These variables are designed to control for the size of the institution. The expected impact of these is somewhat controversial. As mentioned in the Literature Review, Dr. Tidball argues that small colleges afford women the best education. Presumably, this attitude is due to the individual attention available at these schools compared with that offered by larger institutions. Another explanation is that larger schools realize economies of scale in utilizing their resources, and as a result have more to offer students. As in the quadratic specification representing previous experience, the point of diminishing effect can be calculated when parameter estimates are significant.

13. **Percent Women Faculty (PERFFAC)**—This variable reflects the faculty composition of schools attended by sample members. As above, the changing role of women in the work force renders the expected effect of this variable controversial. However, it is intended to reflect solely the impact that the concentration of women faculty has on the labor market success of alumnae. Although this variable is relatively highly correlated with PERFEM (.76) and NOTCOED (.57), as seen in Table 3, it is not intended to represent WC.

14. **Percent Women Students (PERFEM)**—As explained in the general model discussion, this variable is a component of the

vector representing WC. This variable represents the percent of women students at a college. According to Dr. Tidball, those schools where women are in the majority provide a supportive environment that is conducive to the post-college achievement of students. The controversy surrounding the value of women's colleges is again at issue.

15. **Not Coeducational (NOTCOED)**—As described in the general model section of this chapter, this variable is designed to encompass the unique environment that is characteristic of women's colleges. This variable represents a number of factors associated with attending a single-sex college that are distinct from the composition of the student body. Included in this variable are curriculum and the self-selection process involved in choice of college. The other more esoteric components include the previously mentioned nurturing environment that has been associated with the development of personal and leadership skills of graduates.

16. **Total Expenditures Per Student (TOTAL)**—This variable is designed to quantify total expenditures per student. Presumably it will capture college quality. In theory, better colleges will allocate more resources toward educating their students. Therefore, the parameter estimates associated with this variable should positively affect the success of graduates.

17. **Annual Instructional Expenditures Per Student (INSTR)**—This variable is a specific component of the aforementioned total expenditures per student. However, it includes only those funds spent on a student's instruction. Again, this should be a measure of college selectivity. Presumably, better schools spend more to educate students. Thus, this variable should positively influence the post-college success of alumnae.

18. **Annual Research Expenditures Per Student (RSRCH)**—Again, a specific component of TOTAL. This variable is designed to encompass only those funds spent on research at institutions. The expectation is that higher-quality schools expend greater resources. As a result, this variable should positively affect a graduate's success in the labor market. However, the continuing argument in academe regarding the relative benefits of research versus instruction may be a factor in the results obtained.

19. **Annual Student Financial Expenditures (SUPPORT)**—This variable captures college quality based on annual student scholarship and fellowship expenditures. This is the final specific component of the general measure of college selectivity TOTAL.

20. **Public or Private Control (CNTRL)**—This is a dummy variable indicating whether a school is publicly or privately controlled. The employee sample consists of 63 percent public and 37 percent private institutions. The expectation is that students graduating from private schools will perform better in the labor market. Among the factors supporting this theory are a high faculty-student ratio and greater resource availability. The alternate hypothesis is that there are fewer resources available at the private smaller schools. Similarly, it is possible that these colleges are too sheltered and parochial to provide the necessary environment conducive to post-college success. Another facet of this question is the ability to network at smaller schools. The higher socioeconomic status of students attending these colleges may also be related to their later success.

IV. EMPIRICAL RESULTS

The results of the OLS regressions and their interpretation will be presented in the following sequence: (a) first performance rating, (b) average performance rating, (c) time to promotion, and finally (d) salary growth. As explained in the previous chapter, two specifications of each model were estimated. The specifications differ in the variables representing women's colleges. The results of the models using PERFEM will be compared to those using NOTCOED. In addition, the same models were run using specific variables to represent total expenditures per student (INSTR, SUPPORT, RSRCH). Though the results of these models do not differ significantly from those using a single variable for expenditures (TOTAL), they are included in the appendix. The parameter estimates will be evaluated based on a two-tail t-test at the 10 percent level of significance.

A. FIRST PERFORMANCE RATING MODELS (FPRTG)

The parameter estimates obtained with the first specification of this model are presented in Table 4. The results of the personal characteristics will be discussed first. SALGRD had a significantly positive effect on FPRTG. This suggests that personnel in higher salary grades receive higher first performance evaluations. These results corroborate the pyramidal organizational hierarchical structure model. Presumably promotions elevate personnel based on merit, thus

TABLE 4

REGRESSION ESTIMATES OF FIRST PERFORMANCE RATING MODEL (PERFEM) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.16380491	0.16565577	19.099
SALGRD	0.10197425	0.03062092	3.330
MARSTAT	-0.04120697	0.04206765	-0.980
CHILD	-0.001115697	0.04534743	-0.025
PREVEXP	0.02527974	0.01923250	1.214
$PREVEXP^2$	-0.002232134	0.001130264	-1.975
MGPA	0.07227684	0.04889061	1.478
MAST	-0.05999732	0.06637138	-0.904
DOCT	-0.16427615	0.13228677	-1.242
DEGAFTER	0.10233983	0.15059597	0.680
BIGL1	-0.16224927	0.07810761	-2.077
BIGL2	-0.16893944	0.07427176	-2.275
BIGL3	0.04549557	0.08791201	0.518
BIGL4	0.11319819	0.12693101	0.892
BIGL5	0.04880329	0.08076922	0.604
H76	-0.06596182	0.10429047	-0.632
H77	-0.25846640	0.09072526	-2.849
H78	-0.15072759	0.08870159	-1.699
H79	-0.22911317	0.09069503	-2.526
H80	-0.12163691	0.08371790	-1.453
H81	-0.08620301	0.08217409	-1.049
OFFERPHD	0.01008970	0.08345488	0.121
FTE	0.001142511	0.000775082	1.474
FTE^2	-.0000024501	.00000167105	-1.466
PERFFAC	-0.25619052	0.39291041	-0.652
PERFEM	0.36349325	0.31816560	1.142
TOTAL	0.000110421	0.004322116	0.026
CNTRL	0.03558675	0.07764257	0.458

R^2 .0382

employees in higher salary grades would be expected to perform well. Though neither MARSTAT nor CHILD are significant, they have negative coefficients. The impacts of PREVEXP and $PREVEXP^2$ are both significant. Since the relationship represented by PREVEXP and $PREVEXP^2$ is nonlinear, the point of decreasing effect of experience is 5.7 years. Thus, previous experience in the labor force up to 5.7 years would have a positive impact on FPRTG. Experience beyond that would have a negative impact on FPRTG. MGPA exhibits a positive though not significant impact on FPRTG. This tends to support the theory that those who excel in school, as defined by their cumulative averages, will subsequently perform well in the work force. The coefficients of MAST and DOCT are both negative although not significant. The signs are the reverse of expected and the impact of DOCT is dramatically larger than MAST. DEGAFTER has no significant impact on FPRTG. Interestingly, the "Biglan" variables for engineering (BIGL1) and science (BIGL2) reflect a significantly negative effect on FPRTG. In contrast, the variables representing biology (BIGL3), computers (BIGL4), and business (BIGL5) were insignificant, though positive in sign. This implies that women in science and engineering do not perform as well as women in more traditional fields. Perhaps this result is associated with the relative paucity of women in these specialties. The effect of DEGAFTER is trivial though positive.

The vector of job-related characteristics is composed of hire year dummy variables. All variables exhibit a negative sign and, with the exception of H76 and H80–H81, are significant.

The next category of variables represents college characteristics and none of these variables is significant.

The results of the second specification of the first performance rating model are presented in Table 5. The pattern that emerged in the first specification is generally repeated. However, there are slight variations in the nonlinear variables. All are significant and the point of diminishing returns is 5.6 years for PREVEXP and 23,789 students for FTE. Interestingly, NOTCOED has a significantly positive impact on FPRTG. This suggests that graduates of women's colleges perform better on first performance ratings than graduates of coeducational institutions. Thus, attending a coeducational school appears to have more of an impact on performance than merely attending a school with a high percentage of women.

B. AVERAGE PERFORMANCE MODELS (APERF)

The results of the first specification of the average performance rating model are shown in Table 6. As above, the results regarding personal characteristics will be discussed first. Again, SALGRD exhibits a significantly positive effect on APERF. This suggests that individuals in higher salary grades perform better on the average than those at lower levels. This is consistent with the notion of merit-based promotion and organizational hierarchical displacement of low performers. The only other personal variable that is significant is the Biglan dummy representing business major (BIGL5). A possible explanation is that some advantage may exist in the functional areas of the company where business majors are employed.

TABLE 5

REGRESSION ESTIMATES OF FIRST PERFORMANCE RATING MODEL (NOTCOED) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.28899512	0.14282820	23.028
SALGRD	0.10198861	0.03058355	3.335
MARSTAT	-0.04243670	0.04192922	-1.012
CHILD	0.003739977	0.04531982	0.083
PREVEXP	0.02834390	0.1928014	1.470
PREVEXP^2	-0.002535627	0.001139633	-2.225
MGPA	0.07092189	0.04883871	1.452
MAST	-0.06145433	0.06609447	-0.930
DOCT	-0.16361584	0.13200146	-1.240
DEGAFTER	0.09975318	0.15031434	0.664
BIGL1	-017247530	0.07777026	-2.218
BIGL2	-0.17847716	0.07442043	-2.398
BIGL3	0.04726653	0.08772742	0.539
BIGL4	0.11364321	0.12676504	0.896
BIGL5	0.05003730	0.08067329	0.620
H76	-0.07153691	0.10421324	-0.686
H77	-0.26143987	0.09061007	-2.885
H78	-0.15780038	0.08863793	-1.780
H79	-0.23389913	0.09055254	-2.583
H80	-0.13106245	0.08356463	-1.568
H81	-0.09349755	0.08205703	-1.139
OFFERPHD	-0.000557572	0.08354964	-0.007
FTE	0.001522459	0.000761493	1.999
FTE^2	-.0000031606	.00000165713	-1.907
PERFFAC	-0.10346751	0.29373702	-0.352
PERFEM	0.52506326	0.26858033	1.955
TOTAL	-0.001308829	0.004162933	-0.314
CNTRL	0.03432143	0.07755087	0.443

R^2 .0405

TABLE 6

REGRESSION ESTIMATES OF AVERAGE PERFORMANCE MODEL (PERFEM) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.31169381	0.15695972	21.099
SALGRD	0.06928964	0.02901349	2.388
MARSTAT	0.03743810	0.03985932	0.939
CHILD	0.01357872	0.04296693	0.316
PREVEXP	0.009618894	0.01822290	0.528
$PREVEXP^2$	-0.001137420	0.001070931	-1.062
MGPA	0.02677367	0.04632411	0.578
MAST	0.01802861	0.06288723	0.287
DOCT	-0.001298326	0.12534241	-0.010
DEGAFTER	-0.05033915	0.14269048	-0.353
BIGL1	-0.10742921	0.07400737	-1.452
BIGL2	-0.09179294	0.07037288	-1.304
BIGL3	-0.01123386	0.08329709	-0.135
BIGL4	0.16934815	0.12026780	1.408
BIGL5	0.12764147	0.07652926	1.668
H76	-0.01796183	009881577	-0.182
H77	-0.13756843	0.08596267	-1.600
H78	-0.009581312	0.08404522	-0.114
H79	-0.05490045	0.08593402	-0.639
H80	-0.009996496	0.07932315	-0.126
H81	0.03745952	0.07786039	0.481
OFFERPHD	0.10030038	0.07907394	1.268
FTE	0.000449101	0.000734394	0.612
FTE^2	-.0000015085	.00000158333	.0953
PERFFAC	-1.01120407	0.37228469	-2.716
PERFEM	0.48388359	0.30146359	1.605
TOTAL	-0.002235415	0.004095228	-0.546
CNTRL	0.06818150	0.07356675	0.927

R^2 .0407

The coefficients of the hire year dummy variables are negative and not significant.

The results of the vector of college characteristics will be examined next. The impact of PERFFAC is strongly negative though the sign is the reverse of that expected. The implication is that women graduating from colleges with predominantly female faculties do not perform as well in the job force. Conversely, PERFEM, though not quite significant, is positive. This tends to support the idea of the positive effect of the supportive, nurturing environments provided by women's colleges. Perhaps this signals the impact of networking in contrast to the import of women faculty as role models. As illustrated in the previous models, the impact of TOTAL and CNTRL are insignificant.

The outcome of the second specification of the average performance model is presented in Table 7. Generally, the results parallel those obtained with the first specification of the average performance model. The nonlinear variables PREVEXP, $PREVEXP^2$, FTE, and FTE^2 are not significant. Another interesting difference between the first specification and the second is the negligible impact of the variable NOTCOED. This suggests that type of school attended has no impact on job performance measured over several years. Finally, the effect of total expenditures per student is, as in the previous equation, not significant, but it is twice the magnitude of the coefficient in the first model. Curiously, the sign is perverse in that the expectation is that students graduating from schools with greater resources theoretically should outperform graduates of resource-poor colleges.

TABLE 7

REGRESSION ESTIMATES OF AVERAGE PERFORMANCE MODEL (NOTCOED) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.44255649	0.1356621	25.376
SALGRD	0.06950809	0.02904908	2.393
MARSTAT	0.03313302	0.03982552	0.832
CHILD	0.01538129	0.04304600	0.357
PREVEXP	0.009584570	0.01831280	0.523
$PREVEXP^2$	-0.001154674	0.001082454	-1.067
MGPA	0.02777253	0.04638834	0.599
MAST	0.009632867	0.06277832	0.153
DOCT	-0.01198988	0.12537857	-0.096
DEGAFTER	-0.05898366	0.14277264	-0.413
BIGL1	-0.11726519	0.07386830	-1.587
BIGL2	-0.08458827	0.07068654	-1.197
BIGL3	-0.005377955	0.08332588	-0.065
BIGL4	0.17225785	0.12040488	1.431
BIGL5	0.12786504	0.07662569	1.669
H76	-0.01724197	0.09898457	-0.174
H77	-0.13957429	0.08606391	-1.622
H78	-0.01159245	0.08419071	-0.138
H79	-0.05897427	0.08600926	-0.686
H80	-0.01623787	0.07937195	-0.205
H81	0.03304256	0.07794000	0.424
OFFERPHD	0.10035018	0.07935772	1.265
FTE	0.000718265	0.000723287	0.993
FTE^2	-.0000019616	.00000157399	-1.246
PERFFAC	-0.60614491	0.27899941	-2.173
NOTCOED	0.03346940	0.25510490	0.131
TOTAL	-0.003984373	0.003954067	-1.008
CNTRL	0.06801506	0.07365992	0.923

R^2 .0384

C. TIME TO PROMOTION MODELS (TIMEPR)

The results of the first specification appear in Table 8. It is important to remember that the expected signs of these coefficients are the reverse of those expected in the previous equations. In these models, the ideal effect of a variable is negative, i.e., the time to promotion is reduced. As above, the personal characteristics vector will be explored first. Unlike the first two models, FPRTG is included in the independent variables in this model. The results indicate that FPRTG is very negatively associated with TIMEPR. As a consequence, the higher the initial performance evaluation, the shorter time to promotion. The impact of SALGRD on the time to promotion is strongly positive. Thus, individuals in higher salary grades have a longer time to promotion. This result supports the theory of organizational hierarchy and decreasing rate of promotions as one climbs the corporate ladder. As in previous models, the impact of MARSTAT is not significant. Though the effect of CHILD is also not significant, it is twice the magnitude of MARSTAT. Since the coefficients are positive, this result lends credence to the theory that women place a greater value on the family than on a career. Conversely, another explanation is that the responsibilities of a family impede the success of women while promoting that of men. The results of PREVEXP, $PREVEXP^2$, MGPA, MAST, and DOCT are not significant. Interestingly, DEGAFTER has a strongly positive impact on the time to promotion. This implies that promotions are delayed until after receipt of a baccalaureate

TABLE 8

REGRESSION ESTIMATES FROM TIME TO PROMOTION MODEL (PERFEM) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	1.60890716	0.22439130	7.170
SALGRD	-0.22349195	0.03620535	-6.173
MARSTAT	0.38598516	0.03585714	10.765
CHILD	0.03129711	0.04902216	0.638
PREVEXP	-0.01426376	0.02242028	-0.636
$PREVEXP^2$	-0.000696607	0.001318984	-0.528
MGPA	-0.001080466	0.05700677	-0.019
MAST	-0.02964320	0.07733840	-0.383
DOCT	-0.12192036	0.15419939	-0.791
DEGAFTER	0.48498696	0.17544992	2.764
BIGL1	-0.22108919	0.09116743	-2.425
BIGL2	-0.13270495	0.08672603	-1.530
BIGL3	0.02501472	0.10241117	0.244
BIGL4	0.003081919	0.14790317	0.021
BIGL5	0.07994599	0.09409475	0.850
H76	0.14438886	0.12149866	1.188
H77	0.23026566	0.10608827	2.171
H78	0.04027020	0.10346163	0.389
H79	-0.14779302	0.10596470	-1.395
H80	-0.23784740	0.09761211	-2.437
H81	-0.09660834	0.09576540	-1.009
OFFERPHD	0.08173997	0.09720705	0.841
FTE	-0.001467815	0.000903745	-1.624
FTE^2	.00000361127	.00000194842	1.853
PERFFAC	-0.20578624	0.45774717	-0.450
PERFEM	0.27242358	0.37082572	0.735
TOTAL	-0.000433487	0.005034305	-0.086
CNTRL	-0.13361306	0.09044550	-1.477

R^2 .2278

TABLE 9

REGRESSION ESTIMATES FROM TIME TO PROMOTION MODEL (NOTCOED) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	1.64316190	0.20467653	8.028
FPRTG	-0.21931757	0.03622090	-6.055
SALGRD	0.38582551	0.03582927	10.768
MARSTAT	0.02713539	0.04888336	0.555
CHILD	0.05797004	0.05281034	1.098
PREVEXP	-0.01735395	0.02249016	-0.772
PREVEXP2	-0.000418122	0.001331160	-0.314
MGPA	0.001197522	0.05696861	0.021
MAST	-0.03874763	0.07705056	-0.503
DOCT	-0.13556196	0.15393246	-0.881
DEGAFTER	0.47597039	0.17519519	2.717
BIGL1	-0.22319574	0.09083901	-2.457
BIGL2	-0.11361864	0.08696107	-1.307
BIGL3	0.03062539	0.10224113	0.300
BIGL4	0.005909016	0.14777380	0.040
BIGL5	0.07884433	0.09402425	0.839
H76	0.15093666	0.12146499	1.243
H77	0.23162916	0.10600967	2.185
H78	0.04511135	0.10344581	0.436
H79	-0.147436120	0.10585841	-1.393
H80	-0.23628777	0.09749163	-2.424
H81	-0.09490507	0.09567917	-0.992
OFFERPHD	0.09197991	0.09735853	0.945
FTE	-0.001492481	0.000889062	-1.679
FTE2	.00000372305	.00000193441	1.925
PERFFAC	0.16750973	0.34230568	0.489
NOTCOED	-0.46104018	0.31354795	-1.470
TOTAL	-0.001311931	0.004851204	-0.270
CNTRL	-0.13276047	0.09037684	-1.469

R^2 .2290

degree. The results of the Biglan dummies are inconsistent with the previous findings. According to the coefficients, engineers (BIGL1) and scientists (BIGL2) experience a shorter time to promotion. This conflicts with the lower performance evaluations revealed above. In contrast, the impact of the other fields on promotion are trivial.

The impact of the hire year dummies is inconsistent. H77 has a significantly positive impact on TIMEPR, while H80 is significantly negatively related to the time to promotion. Since the other years are not significant and are erratic in sign, it is virtually impossible to draw meaningful conclusions.

The results of the college characteristics will follow. OFFERPHD has no effect on the time to promotion. Curiously, the nonlinear variables FTE and FTE^2 are both significant and indicate a point of diminishing returns to college size of 20,386. This implies that graduates of schools smaller than 20,386 students experience a shorter time to promotion than the graduates of larger schools. These results are not supportive of Dr. Tidball's analysis of the ideal college size most beneficial to women. PERFFAC, PERFEM, and TOTAL appear to have no influence on TIMEPR. Similarly, CNTRL is negative but not significant.

D. GROWTH IN SALARY MODELS (GSAL)

The results of the first specification of this model appear in Table 10. Initially, the results of the personal characteristics will be analyzed. SALGRD has a significantly negative impact on GSAL. This translates to the expectation that the rate of salary growth is inversely

TABLE 10

REGRESSION ESTIMATES FROM GROWTH IN SALARY MODEL (PERFEM) N=1482

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	0.20342016	0.07170874	2.837
SALGRD	-0.06804704	0.01101464	-6.178
MARSTAT	0.07714936	0.01827796	4.221
CHILD	0.01181076	0.01865110	0.633
PREVEXP	0.000438817	0.007701887	0.057
$PREVEXP^2$	-0.000193757	0.000453299	-0.427
MGPA	-0.01688150	0.02093910	-0.806
MAST	0.04614219	0.02792126	1.653
DOCT	0.24495140	0.04705305	5.206
DEGAFTER	0.18183601	0.06500170	2.797
BIGL1	-0.05297828	0.03309684	-1.601
BIGL2	-0.04004656	0.03269544	-1.225
BIGL3	-0.02379102	0.03727419	-0.68
BIGL4	-0.05943213	0.05549421	-1.071
BIGL5	-0.01000698	0.03587041	-0.279
H76	0.93869831	0.04395783	21.355
H77	0.74680043	0.03851735	19.389
H78	0.57436525	0.03707915	15.490
H79	0.40907228	0.03754223	10.896
H80	0.25954489	0.03399018	7.636
H81	0.13567320	0.03250383	4.174
OFFERPHD	0.04403961	0.03511939	1.254
FTE	0.000061376	0.00326199	0.188
FTE^2	-1.15727E-07	7.05266E-07	-0.164
PERFFAC	-0.26854875	0.17015251	-1.578
PERFEM	0.08371709	0.13794252	0.607
TOTAL	.00000535003	0.001782912	0.003
CNTRL	0.03565745	0.03509082	1.016

R^2 .4381

proportional to salary grade. Stated simply, those in entry-level jobs will have a higher rate of salary growth than employees in higher positions. In contrast to the results obtained in previous models, the results of MARSTAT are significant and positive. As a consequence, the hypothesis that married individuals outperform single employees and receive more rapid wage increases is supported. Conversely, the impact of CHILD, though positive, is trivial. The result of the nonlinear variables for PREVEXP and PREVEXP^2 are not significant. MGPA has a negligible impact on GSAL. However, MAST, DOCT, and DEGAFTER are significantly positively related to salary growth. Surprisingly, DOCT is more than twice the size of MAST. This seems to contradict the notion of the low rate of return associated with graduate-level education. However, it is consoling to associate a more advanced degree with an accelerated rate of wage growth. As in previous models, the Biglan results are erratic. Only the variable for engineering (BIGL1) approaches significance and is negative. This implies that the rate of salary growth is slower for engineers. Perhaps this finding reflects the lower performance evaluations revealed in previous models.

The hire year dummy variables exhibit a monotonic relationship to salary growth. All years are significant and positive, though the trend is decreasing. This implies that the employees hired in early years experience a higher rate of salary growth than those hired more recently. These results are logical and expected.

The final category of characteristics to be evaluated are those relating to colleges. OFFERPHD is positive though not quite significant.

Similarly, the results of the nonlinear variables representing FTE are not significant. PERFFAC, while not quite significant, is negative, repeating previous findings. The effects of PERFEM, TOTAL, and CNTRL are negligible.

The findings obtained in the last specification are presented in Table 11. As in previous models, only the differences between specifications will be emphasized. These specifications yielded very similar results. Among the distinguishing features between the two equations are that the effect of MAST is not significant in this specification and that BIGL1 is significantly negative. Apparently, the hypothesis of the importance of women role models is not substantiated with respect to wage growth.

In summary, the significant combined results of the two specifications of each model are:

FPRTG was positively influenced by SALGRD and NOTCOED. BIGL1, BIGL2, and H77-H79 had a negative impact.

APERF was positively affected by SALGRD and BIGL5. PERFFAC had a negative influence on APERF.

TIMEPR is a reverse measure of success and thus exhibits the reverse of the previously expected signs. It was positively influenced by SALGRD, DEGAFTER, and H77. Conversely, FPRTG, BIGL1, and H80 negatively affected this variable.

GSAL was positively influenced by MARSTAT, MAST, DOCT, DEGAFTER, and H76-H81. In contrast, SALGRD, PERFFAC, and BIGL1 exhibited a negative effect.

TABLE 11

REGRESSION ESTIMATES FROM GROWTH IN SALARY MODEL (NOTCOED) N=1482

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	0.22415033	0.06196456	3.617
SALGRD	-0.06785653	0.01101197	-6.162
MARSTAT	0.07645711	0.01826324	4.186
CHILD	0.01202929	0.01865151	0.645
PREVEXP	0.000349021	0.007705629	0.045
$PREVEXP^2$	-0.000187684	0000454056	-0.413
MGPA	-0.01700883	0.02094002	-0.812
MAST	0.04437250	0.02783383	1.594
DOCT	0.24293377	0.04702197	5.166
DEGAFTER	0.18006092	0.06497526	2.771
BIGL1	-0.05506663	0.03290663	-1.673
BIGL2	-0.03876701	0.03273592	-1.184
BIGL3	-0.02296246	0.03727657	-0.616
BIGL4	-0.05874494	0.05548830	-1.059
BIGL5	-0.01006263	0.03587398	-0.280
H76	0.93885286	0.04396800	21.353
H77	0.74641227	0.03854392	19.365
H78	0.57400830	0.03708718	15.477
H79	0.40845580	0.03756053	10.875
H80	0.25863160	0.03396950	7.614
H81	0.13496918	0.03250384	4.152
OFFERPHD	0.04424023	0.03527444	1.254
FTE	0.000092134	0.00032186	0.286
FTE^2	-1.59511E-07	7.02696E-07	-0.227
PERFFAC	-0.18529199	0.12592862	-1.471
NOTCOED	-0.02844815	0.10958793	-0.260
TOTAL	-0.000221568	0.001740543	-0.127
CNTRL	0.03503426	0.03509415	0.998

R^2 .4380

V. CONCLUSIONS AND RECOMMENDATIONS

The inconsistencies present within and between models in this study make the results largely ambiguous. As a result, it may be useful to examine the significant results of variables across models in order to more clearly see trends. The effect of salary grade was positive both in the first performance rating model and in the average performance model. In contrast, though the estimated coefficient in the time to promotion model is positive, it actually has a reverse effect. In this model, the impact of salary grade is to prolong the time to promotion. Finally, the effect of salary grade on the last measure of job success, growth in salary, was negative. Though the results obtained with this independent variable are somewhat inconsistent, some conclusions can be drawn. Apparently personnel in higher salary grades perform better than those in lower grades. However, due to the organizational hierarchy, those at higher levels are promoted at lower rates and receive a lower rate of change in salary.

The effect of marital status was positively significant in only the growth in salary model. This finding contradicts the research conducted by Dr. Tidball. In contrast to the expected lower rate of achievement of married women, this seems to parallel the higher achievement characteristic of married men. This result is presumably ascribable to the increased responsibilities associated with marriage. It

is interesting to note that the effect of children was not significant in any model.

The variables representing previous experience were significant only in the first performance rating model. This seems logical since the impact of previous experience would be expected to decline over time. Also, this finding may be indicative of the greater impact of education than training or job performance. However, the impact of graduate education was significant only in the salary growth model. Similarly, the results of obtaining a degree after hire were positively related to both time to promotion and salary growth. As in previous discussions, the positive impact on time to promotion is a negative indicator of success.

The results of the Biglan dummies are especially inconsistent and difficult to derive meaningful conclusions from. The impact of the variable representing engineering (BIGL1) was negative on first performance rating, time to promotion, and growth in salary. The effect of science (BIGL2) was negative only in the first performance rating model. Finally, the business dummy (BIGL5) positively influenced only the average performance dependent variable.

Similarly, the results obtained from the hire year dummies are inconsistent and erratic. H77 negatively affected FPRTG but positively influenced both TIMEPR and GSAL. H78 affected FPRTG negatively and GSAL positively. H80 had a negative impact on time to promotion and a positive impact on GSAL. Finally, H81 positively influenced only the growth in salary model.

The effect of college size, represented by FTE and FTE^2, was significant in only the first performance and time to promotion models.

Finally, the effect of PERFFAC was negative on the average performance model and growth and salary models. This result is disappointing and unexpected. Apparently the effect of women faculty is negligible, as in previous models, or negatively related to average performance. In contrast, NOTCOED was positive only in the first performance model. This finding is as anticipated, but dubious in view of its absence in other models.

In conclusion, it is conceivable that the inconsistencies seen in these models are largely due to the small sample size of women graduates of women's colleges as compared to coeducational institutions. Moreover, it is possible that due to the relative infancy of women in the professions examined in this corporation, the results arc premature. The possibility that the unexpected outcome of this study is related to the inability to quantify innate ability and college self-selection also exists. As a result of this study, one cannot conclude that it is necessarily better to attend a women's college. Perhaps the more pertinent issue is to relate those still ambiguous factors existing at colleges where alumnae outperform graduates of other schools. The pecentage of women students in a college class seems to positively relate to job success. Another facet of this argument is that the study of women's schools may simply be an anachronism. The relative paucity of these schools suggest that their study may be analogous to Monday night quarterbacking, ipso facto. Finally, these results may

simply reflect the dynamic nature of gender-role modification. The societal norms, family pressures, and possible discriminatory practices in the labor market may be partially responsible for the aberrant results of this study.

Follow-on research in this area either should focus on a larger sample of women graduates of women's schools, or the environment at coeducational schools should be studied to more clearly identify the areas requiring improvement. Ultimately, women should be encouraged to enter nontraditional professional fields. When women are truly integrated into the professional infrastructure, their performance can better be evaluated.

APPENDIX

REGRESSION ESTIMATES

REGRESSION ESTIMATES OF FIRST PERFORMANCE RATING MODEL (PERFEM) N-1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.17138459	0.16612222	19.091
SALGRD	0.10132229	0.03064456	3.306
MARSTAT	-0.04319965	0.04220405	-1.024
CHILD	-0.001592693	0.04540305	-0.035
PREVEXP	0.024[illegible]553	0.01937070	1.258
PREVEXP^2	-0.002170229	0.001137481	-1.908
MGPA	0.07465915	0.04909674	1.521
MAST	-0.05950483	0.06639538	-0.896
DOCT	-0.15909783	0.13293623	-1.197
DEGAFTER	0.09872513	0.15083384	0.655
BIGL1	-0.15839959	0.07853779	-2.017
BIGL2	-0.16384986	0.07487440	-2.188
BIGL3	0.04805767	0.08808767	0.546
BIGL4	0.11497613	0.12711718	0.904
BIGL5	0.05103870	0.08097935	0.630
H76	-0.06839734	0.10444006	-0.655
H77	-0.25882303	0.09088838	-2.848
H78	-0.15041748	0.08878086	-1.694
H79	-0.23138310	0.09084191	-2.547
H80	-0.12108353	0.08379879	-1.445
H81	-0.08687560	0.08226321	-1.056
OFFERPHD	0.003336351	0.08408822	0.040
FTE	0.001055091	0.000812252	1.299
FTE^2	-.0000023098	.00000170444	-1.355
PERFFAC	-0.33942577	0.40583342	-0.836
PERFEM	0.38813332	0.32386502	1.198
INSTR	.00000113429	.00000158974	0.714
RSRCH	4.11708E-09	.00000209001	0.002
SUPPORT	-.0000020811	.00000413434	-0.503
CNTRL	0.03447451	0.07775423	0.443

R^2 .0369

REGRESSION ESTIMATES OF FIRST PERFORMANCE RATING MODEL (NOTCOED) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.30119929	0.14798782	22.307
SALGRD	0.10101755	0.03060460	3.301
MARSTAT	-0.04497532	0.04207071	-1.069
CHILD	0.003687499	0.04535560	0.081
PREVEXP	0.02769085	0.01939580	1.428
$PREVEXP^2$	-0.002488256	0.001144810	-2.174
MGPA	0.07336290	0.04903712	1.496
MAST	-0.06066660	0.06614361	-0.917
DOCT	-0.15587139	0.13271770	-1.174
DEGAFTER	0.09535520	0.15056129	0.633
BIGL1	-0.16736472	0.07826670	-2.138
BIGL2	-0.17194277	0.07491814	-2.295
BIGL3	0.05092404	0.08788287	0.579
BIGL4	0.11647191	0.12692600	0.918
BIGL5	0.05351279	0.08087448	0.662
H76	-0.07401976	0.10435767	-0.709
H77	-0.26123331	0.09077530	-2.878
H78	-0.15775271	0.08870432	-1.778
H79	-0.23631036	0.09071404	-2.605
H80	-0.13054605	0.08364744	-1.561
H81	-0.09484711	0.08213473	-1.155
OFFERPHD	-0.009507636	0.08421664	-0.113
FTE	0.001466723	0.000786786	1.864
FTE^2	-.0000030688	0.0000016771	-1.830
PERFFAC	-0.19688441	0.31459192	-0.626
NOTCOED	0.55069388	0.27068652	2.034
INSTR	.00000126332	.00000158865	0.795
RSRCH	-4.63741E-07	.00000203059	-0.579
SUPPORT	-.0000023879	.00000412234	-0.228
CNTRL	0.03244024	0.07765537	0.418

R^2 .0394

REGRESSION ESTIMATES OF AVERAGE PERFORMANCE MODEL (PERFEM) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.31833839	0.15735886	21.088
SALGRD	0.06827134	0.02902798	2.352
MARSTAT	0.03457581	0.03997768	0.865
CHILD	0.01326646	0.04300793	0.308
PREVEXP	0.008733809	0.01834885	0.476
PREVEXP2	-0.001067757	0.001077476	-0.991
MGPA	0.02949408	0.04650677	0.634
MAST	0.01910472	0.06289286	0.304
DOCT	0.008912694	0.12592351	0.071
DEGAFTER	-0.05558424	0.14287697	-0.389
BIGL1	-0.10059796	0.07439473	-1.352
BIGL2	-0.08335380	0.07092459	-1.175
BIGL3	-0.006897544	0.08344082	-0.083
BIGL4	0.17270070	0.12041143	1.434
BIGL5	0.13188336	0.07670749	1.719
H76	-0.02008162	0.09893058	-0.203
H77	-0.13680283	0.08609379	-1.589
H78	-0.008973507	0.08409745	-0.107
H79	-0.05683442	0.08604977	-0.660
H80	-0.008570994	0.07937820	-0.108
H81	0.03623095	0.07792362	0.465
OFFERPHD	0.09153793	0.07965235	1.149
FTE	0.000376460	0.000769403	0.489
FTE2	-.0000013823	.00000161453	-0.856
PERFFAC	-1.12695741	0.38442468	-2.932
NOTCOED	0.49857938	0.30678033	1.625
INSTR	.00000136072	.00000150588	0.904
RSRCH	-7.78353E-07	.00000197976	-0.393
SUPPORT	-.0000026618	.00000391625	-0.680
CNTRL	0.06578335	0.07365250	0.893

R^2 .0399

REGRESSION ESTIMATES OF AVERAGE PERFORMANCE MODEL (NOTCOED) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	3.44114647	0.14054013	24.485
SALGRD	0.06810400	0.02906438	2.343
MARSTAT	0.03061945	0.03995345	0.766
CHILD	0.01582524	0.04307302	0.367
PREVEXP	0.009542165	0.01841968	0.518
$PREVEXP^2$	-0.001131405	0.001087196	-1.041
MGPA	0.02940869	0.04656926	0.632
MAST	0.01140929	0.06281485	0.182
DOCT	0.000215884	0.12603850	0.002
DEGAFTER	-0.06294253	0.14298409	-0.440
BIGL1	-0.10903367	0.07432782	-1.467
BIGL2	-0.07598638	0.07114778	-1.068
BIGL3	-0.000782930	0.08346004	-0.009
BIGL4	0.17665280	0.12053828	1.466
BIGL5	0.13315428	0.07680437	1.734
H76	-0.01834654	0.09910573	-0.185
H77	-0.13743022	0.08620691	-1.594
H78	-0.01142944	0.08424016	-0.136
H79	-0.05997993	0.08614874	-0.696
H80	-0.01471442	0.07943777	-0.185
H81	0.03130741	0.07800119	0.401
OFFERPHD	0.09025300	0.07997833	1.128
FTE	0.000719491	0.000747190	0.963
FTE^2	-.0000019409	.00000159269	-1.219
PERFFAC	-0.72823339	0.29875966	-2.438
NOTCOED	0.05658258	0.25706385	0.220
INSTR	.00000119551	0.0000015087	0.792
RSRCH	-.0000015165	.00000192839	-0.786
SUPPORT	-.0000019748	.00000391488	-0.504
CNTRL	0.06497930	0.07374726	0.881

R^2 .0375

REGRESSION ESTIMATES FROM TIME TO PROMOTION MODEL (PERFEM) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	1.60492481	0.22480799	7.139
FPRTG	-0.22268686	0.03620056	-6.151
SALGRD	0.38737596	0.03584304	10.808
MARSTAT	0.03432055	0.04912921	0.699
CHILD	0.05942965	0.05282637	1.125
PREVEXP	-0.01485529	0.02255503	-0.659
$PREVEXP^2$	-0.000703399	0.001325787	-0.531
MGPA	-0.001594557	0.05718784	-0.028
MAST	-0.03047150	0.07728089	-0.394
DOCT	-0.14546286	0.15477816	-0.940
DEGAFTER	0.49187993	0.17553118	2.802
BIGL1	-0.23577295	0.09155826	-2.575
BIGL2	-0.15030070	0.08731788	-1.721
BIGL3	0.01663983	0.10250455	0.162
BIGL4	-0.006115407	0.14795908	-0.041
BIGL5	0.07008945	0.09423739	0.744
H76	0.14405557	0.12154097	1.185
H77	0.22442206	0.10616268	2.114
H78	0.04033125	0.10343973	0.390
H79	-0.14911169	0.10602572	-1.406
H80	-0.23996349	0.09759817	-2.459
H81	-0.09142358	0.09576469	-0.955
OFFERPHD	0.09379943	0.09783651	0.959
FTE	-0.001653592	0.000945824	-1.748
FTE^2	.00000382584	.00000198488	1.927
PERFFAC	-0.08351643	0.47234602	-0.177
PERFEM	0.36192489	0.37707802	0.960
INSTR	-.0000023516	.00000185012	-1.271
RSRCH	.00000339502	.00000243173	1.396
SUPPORT	-9.95016E-07	.00000481089	-0.207
CNTRL	-0.12785773	0.09047546	-1.413

R^2 .2284

REGRESSION ESTIMATES FROM TIME TO PROMOTION MODEL (NOTCOED) N=1062

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	1.64214947	0.20971166	7.831
FPRTG	-0.21782170	0.03622129	-6.014
SALGRD	0.38694589	0.03581616	10.804
MARSTAT	0.03030016	0.04900428	0.618
CHILD	0.05782222	0.05280152	1.095
PREVEXP	-0.01721888	0.02260215	-0.762
$PREVEXP^2$	-0.000456061	0.001335791	-0.341
MGPA	-0.000724346	0.05714906	-0.013
MAST	-0.04082457	0.07703335	-0.530
DOCT	-0.16149682	0.15460826	-1.045
DEGAFTER	0.48360238	0.17531203	2.759
BIGL1	-0.23856844	0.09131670	-2.613
BIGL2	-0.12962042	0.08743906	-1.482
BIGL3	0.02281586	0.10232668	0.223
BIGL4	-0.002156046	0.14782287	-0.015
BIGL5	0.06919530	0.09417110	0.735
H76	0.15298489	0.12151900	1.259
H77	0.22725221	0.10610009	2.142
H78	0.04500103	0.10342432	0.435
H79	-0.14764720	0.10595232	-1.394
H80	-0.23888210	0.09749406	-2.450
H81	-0.09019781	0.09567997	-0.943
OFFERPHD	0.10532824	0.09804257	1.074
FTE	-0.001563285	0.000917487	-1.704
FTE^2	.00000377495	.00000195558	1.930
PERFFAC	0.38283789	0.36630596	1.045
NOTCOED	-0.49270252	0.31575412	-1.560
INSTR	-.0000027478	.00000185002	-1.485
RSRCH	.00000274956	.00000236399	1.163
SUPPORT	3.97502E-07	.00000479986	0.083
CNTRL	-0.12712292	0.09041120	-1.406

R^2 .2296

REGRESSION ESTIMATES FROM GROWTH IN SALARY MODEL (PERFEM) N=1482

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	0.23064801	0.07182715	3.211
SALGRD	-0.06896331	0.01099325	-6.273
MARSTAT	0.07373788	0.01827815	4.034
CHILD	0.01156121	0.01861090	0.621
PREVEXP	-0.001012558	0.007707792	-0.131
$PREVEXP^2$	-0.000100267	0.000453553	-0.221
MGPA	-0.01232253	0.02095372	-0.588
MAST	0.04765869	0.02787196	1.710
DOCT	0.24843355	0.04701726	5.284
DEGAFTER	0.17699171	0.06489418	2.727
BIGL1	0.04906740	0.03312141	-1.481
BIGL2	-0.03381547	0.03274170	-1.033
BIGL3	-0.02250427	0.03721053	-0.605
BIGL4	-0.06033367	0.05538859	-1.089
BIGL5	-0.008384412	0.03581877	-0.234
H76	0.93238262	0.04391912	21.230
H77	0.74241738	0.03849939	19.284
H78	0.57283260	0.03700795	15.479
H79	0.40225534	0.03755472	10.711
H80	0.25799413	0.03394016	7.601
H81	0.13227105	0.03245573	4.075
OFFERPHD	0.03923403	0.03521045	1.114
FTE	-0.000166908	0.000341891	-0.488
FTE^2	2.13475E-07	7.17903E-07	0.297
PERFFAC	-0.37679232	0.17401138	-2.165
PERFEM	0.13037996	0.14011659	0.931
INSTR	.00000151527	6.86855E-07	2.206
RSRCH	6.81185E-07	8.78900E-07	0.775
SUPPORT	-.0000044216	.00000170949	-2.586
CNTRL	0.03494740	0.03502276	0.998

R^2 .4405

REGRESSION ESTIMATES FROM GROWTH IN SALARY MODEL (NOTCOED) N=1482

Independent Variables	Parameter Estimates	Standard Errors	T Statistics
INTERCEPT	0.26161243	0.6414687	4.078
SALGRD	-0.06867813	0.01099247	-6.248
MARSTAT	0.07302799	0.01827091	3.997
CHILD	0.01185604	0.01861442	0.637
PREVEXP	-0.000929911	0.007711531	-0.121
PREVEXP^2	-0.000107349	0.000454179	-0.236
MGPA	-0.01277727	0.02095439	-0.610
MAST	0.04538266	0.02779057	1.633
DOCT	0.24616944	0.04700360	5.237
DEGAFTER	0.17490198	0.06488145	2.696
BIGL1	-0.05213934	0.03296783	-1.582
BIGL2	-0.03272886	0.03277581	-0.999
BIGL3	-0.02155398	0.03721672	-0.579
BIGL4	-0.05906776	0.05538836	-1.066
BIGL5	-0.008322553	0.03582937	-0.232
H76	0.93339221	0.04392597	21.249
H77	0.74284294	0.03852665	19.281
H78	0.57273098	0.03702345	15.469
H79	0.40225721	0.03757725	10.705
H80	0.25704436	0.03393620	7.574
H81	0.13159587	0.03246216	4.054
OFFERPHD	0.03782907	0.03538503	1.069
FTE	-0.000082847	0.000332532	-0.249
FTE^2	8.35952E-08	7.10009E-07	0.118
PERFFAC	-0.26623989	0.13260998	-2.008
NOTCOED	0.003042772	0.10997134	0.028
INSTR	.00000148267	6.88162E-07	2.155
RSRCH	4.96051E-07	8.56369E-07	0.579
SUPPORT	-.0000042257	.00000170424	-2.480
CNTRL	0.03423368	0.03503077	0.977

R^2 .4402

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